

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 20. (canceled).

21. (currently amended): An image processing apparatus, comprising:
acquiring means for acquiring image data of a plurality of first images to be synthesized
that are obtained by taking a single scene under different exposure conditions;
synthesis means for synthesizing said image data of said plurality of first images obtained
by said acquiring means to generate synthesized image data of a composite image; and
image processing means for subjecting the synthesized image data of said composite
image by said synthesis means to dodging processing,
wherein said synthesis means sets synthesis conditions of image synthesis using said
image data of said plurality of first images, and synthesizes said image data of said plurality of
first images using said set synthesis conditions.

22. (original): The image processing apparatus according to claim 21, wherein said
synthesis means performs said image synthesis after converting said image data of said plurality
of first images to subject luminance data of logarithmic scales.

23. (original): The image processing apparatus according to claim 22, wherein said
synthesis conditions are shifting amounts of the subject luminance data of respective images
from the subject luminance data of one image among said plurality of first images, and

wherein said synthesis means selects pixels without washed-out highlights and dull shadows from the subject luminance data of said one image and said respective images, respectively, determines respective averages of the subject luminance data of sets of the selected pixels, and calculates each difference between each of the determined averages of said respective images and the determined average of said one image as each of the shifting amounts of the respective images.

24. (currently amended): The image processing apparatus according to claim 21, wherein weighting to each image to be synthesized at the time of the image synthesis is determined in accordance with the image ~~data of~~ data of said plurality of first images.

25. (original): The image processing apparatus according to claim 21, wherein said plurality of first images are taken by a digital camera, and said synthesized image data output from said synthesis means or said image processing means includes image data for outputting as a photographic print.

26. (original): The image processing apparatus according to claim 21, wherein said synthesis means comprises:

a memory for storing the image data of said plurality of first images;
converting means for converting said image data of said plurality of first images read out from said memory to subject luminance data of logarithmic scales;
setting means for setting said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images;

a first adder for adding the set shifting amounts to the subject luminance data of said respective images, respectively;

a multiplier for performing weighting to the subject luminance data of said one image and the added subject luminance data of said respective images, respectively; and

a second adder for adding the weighted subject luminance data of said one image and the weighted added subject luminance data of said respective images.

27. (original): An image processing apparatus, comprising:

acquiring means for acquiring image data of a plurality of second images obtained by taking a single scene under different exposure conditions;

selection means for selecting a plurality of optimal first images for synthesis among said image data of said plurality of second images obtained by said acquiring means; and

synthesis means for synthesizing image data of said plurality of the optimal first images selected by said selection means to generate synthesized image data of a composite image,

wherein said synthesis means sets synthesis conditions of image synthesis using said image data of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions.

28. (original): The image processing apparatus according to claim 27, further comprising image processing means for subjecting the synthesized image data of the composite image by said synthesis means to dodging processing.

29. (original): The image processing apparatus according to claim 27, wherein said synthesis means comprises:

a memory for storing the image data of said plurality of first images;

converting means for converting said image data of said plurality of first images read out from said memory to subject luminance data of logarithmic scales;

setting means for setting said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images;

a first adder for adding the set shifting amounts to the subject luminance data of said respective images, respectively;

a multiplier for performing weighting to the subject luminance data of said one image and the added subject luminance data of said respective images, respectively; and

a second adder for adding the weighted subject luminance data of said one image and the weighted added subject luminance data of said respective images.

30. (original): The image processing apparatus according to claim 27, wherein weighting to each image to be synthesized at the time of the image synthesis is determined in accordance with the image data of said plurality of first images.

31. (currently amended): The image processing apparatus according to claim 27, wherein said plurality of first images are taken by a digital camera, and said synthesized image data output from said synthesis means or said an image processing means includes image data for outputting as a photographic print.

32. (original): The image processing apparatus according to claim 27, wherein said selection means selects said plurality of optimal first images for synthesis using at least one of shooting time of day and said image data of said plurality of second images.

33. (original): The image processing apparatus according to claim 32, wherein said selection means selects said plurality of optimal first images using said shooting time of day and said image data of said plurality of second images.

34. (original): The image processing apparatus according to claim 33, wherein said selection means judges a plurality of third images obtained by taking a single scene under different exposure conditions using said shooting time of day of said plurality of second images, prepares respective histograms of said plurality of third images using image data of said plurality of third images, and selects said plurality of optimal first images for synthesis using the prepared respective histograms.

35. (original): An image processing apparatus, comprising:
acquiring means for acquiring image data of a plurality of first images to be synthesized that are obtained by taking a single scene under different exposure conditions;
synthesis means for synthesizing said image data of said plurality of first images obtained by said acquiring means to generate synthesized image data of a composite image; and
image processing means for subjecting the synthesized image data of said composite image by said synthesis means to dodging processing,

wherein said synthesis means sets synthesis conditions of image synthesis using shutter speeds and aperture sizes of a stop of a camera at the time of taking said plurality of first images among shooting information of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions, and

wherein said synthesis means
performs said image synthesis after converting said image data of said plurality of first images to subject luminance data of logarithmic scales,
sets said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images, as well as,

determines logarithmic values of the shutter speeds and the aperture sizes of the stop when said one image and said respective images were taken respectively, calculates each first difference between each of the determined logarithmic values of the shutter speeds when said respective images were taken and each of the determined logarithmic values of the shutter speeds when said one image was taken, and each second difference between each of the determined logarithmic values of the aperture sizes of the stop when said respective images were taken and each of the determined logarithmic values of the aperture sizes of the stop when said one image was taken, and adds said each first difference and said each second difference for said respective images to calculate the shifting amounts of the respective images.

36. (original): The image processing apparatus according to claim 35, wherein weighting to each image to be synthesized at the time of the image synthesis is determined in accordance with the image data of said plurality of first images.

37. (original): The image processing apparatus according to claim 35, wherein said plurality of first images are taken by a digital camera, and said synthesized image data output from said synthesis means or said image processing means includes image data for outputting as a photographic print.

38. (original): The image processing apparatus according to claim 35, wherein said synthesis means comprises:

a memory for storing the image data of said plurality of first images;
converting means for converting said image data of said plurality of first images read out from said memory to subject luminance data of logarithmic scales;

setting means for setting said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images;

a first adder for adding the set shifting amounts to

the subject luminance data of said respective images, respectively;

a multiplier for performing weighting to the subject luminance data of said one image and the added subject luminance data of said respective images, respectively; and

a second adder for adding the weighted subject luminance data of said one image and the weighted added subject luminance data of said respective images.

39. (original): An image processing apparatus, comprising:

acquiring means for acquiring image data of a plurality of second images obtained by taking a single scene under different exposure conditions;

selection means for selecting a plurality of optimal first images for synthesis among said plurality of second images obtained by said acquiring means; and

synthesis means for synthesizing image data of said plurality of the optimal first images selected by said selection means to generate synthesized image data of a composite image,

wherein said synthesis means sets synthesis conditions of image synthesis using shutter speeds and aperture sizes of a stop of a camera at the time of taking said plurality of first images among shooting information of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions, and

wherein said synthesis means

performs said image synthesis after converting said image data of said plurality of first images to subject luminance data of logarithmic scales,

sets said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images, as well as,

determines logarithmic values of the shutter speeds and the aperture sizes of the stop when said one image and said respective images were taken respectively, calculates each first difference between each of the determined logarithmic values of the shutter speeds when said respective images were taken and each of the determined logarithmic values of the shutter speeds when said one image was taken, and each second difference between each of the determined logarithmic values of the aperture sizes of the stop when said respective images were taken and each of the determined logarithmic values of the aperture sizes of the stop when said one image was taken, and adds said each first difference and said each second difference for said respective images to calculate the shifting amounts of the respective images.

40. (original): The image processing apparatus according to claim 39, further comprising image processing means for subjecting the synthesized image data of the composite image by said synthesis means to dodging processing.

41. (original): The image processing apparatus according to claim 39, wherein weighting to each image to be synthesized at the time of the image synthesis is determined in accordance with the image data of said plurality of first images.

42. (currently amended):: The image processing apparatus according to claim 39, wherein said plurality of first images are taken by a digital camera, and said synthesized image data output from said synthesis means or said an image processing means includes image data for outputting as a photographic print.

43. (original): The image processing apparatus according to claim 39, wherein said selection means selects said plurality of optimal first images for synthesis using at least one of shooting time of day and said image data of said plurality of second images.

44. (original): The image processing apparatus according to claim 43, wherein said selection means selects said plurality of optimal first images using said shooting time of day and said image data of said plurality of second images.

45. (original): The image processing apparatus according to claim 44, wherein said selection means judges a plurality of third images obtained by taking a single scene under different exposure conditions using said shooting time of day of said plurality of second images, prepares respective histograms of said plurality of third images using image data of said plurality of third images, and selects said plurality of optimal first images for synthesis using the prepared respective histograms.

46. (original): The image processing apparatus according to claim 39, wherein said synthesis means comprises:

a memory for storing the image data of said plurality of first images;

converting means for converting said image data of said plurality of first images read out from said memory to subject luminance data of logarithmic scales;

setting means for setting said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images;

a first adder for adding the set shifting amounts to the subject luminance data of said respective images, respectively;

a multiplier for performing weighting to the subject luminance data of said one image and the added subject luminance data of said respective images, respectively; and

a second adder for adding the weighted subject luminance data of said one image and the weighted added subject luminance data of said respective images.

47. (new): An image processing apparatus, comprising:

synthesis means for synthesizing image data of a plurality of first images to generate synthesized image data of a composite image;

wherein said synthesis means sets synthesis conditions of image synthesis using shutter speeds and aperture sizes of a stop of a camera at the time of taking said plurality of first images among shooting information of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions, and

wherein said synthesis means:

sets said synthesis conditions as shifting amounts of subject luminance data of respective images from the subject luminance data of one image among said plurality of first images, and

determines logarithmic values of the shutter speeds and the aperture sizes of the stop when said one image and said respective images were taken respectively, calculates each first difference between each of the determined logarithmic values of the shutter speeds when said respective images were taken and each of the determined logarithmic values of the shutter speeds when said one image was taken, and each second difference between each of the determined logarithmic values of the aperture sizes of the stop when said respective images were taken and each of the determined logarithmic values of the aperture sizes of the stop when said one image was taken, and adds said each first difference and said each second difference for said respective images to calculate the shifting amounts of the respective images.

48. (new): The image processing apparatus according to claim 27, wherein said acquiring means acquires image data of a plurality of third images including the image data of said plurality of second images obtained by taking the single scene under the different exposure conditions, and

said selection means selects said image data of said plurality of second images that are judged as the single scene among said image data of said plurality of third images obtained by said acquiring means, and thereafter selects said plurality of optimal first images for synthesis among said selected image data of said plurality of second images.

49. (new): The image processing apparatus according to claim 27, wherein said selection means automatically selects said plurality of optimal first images for synthesis among said image data of said plurality of second images such that said synthesized image data of the composite image has a dynamic range as wide as possible.

50. (new): The image processing apparatus according to claim 49, wherein said selection means automatically selects said plurality of optimal first images for synthesis among said image data of said plurality of second images such that said synthesized image data of the composite image is capable of reproducing overall image scene from highlight to shadow without washed-out highlight or dull shadow in addition to having the dynamic range as wide as possible.

51. (new): The image processing apparatus according to claim 27, wherein said selection means forms density histograms of said image data of said plurality of second images, and automatically selects said plurality of optimal first images for synthesis among said image data of said plurality of second images using said density histograms of said image data of said plurality of second images.